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ABSTRACT

This study focuses on specific interaction behaviors rather than looking at overall levels of interaction. These behaviors can be seen as important starting points or integral components of interactive dialogue. If students perceive barriers to asking and answering questions, interaction may be seriously curtailed. The purpose of this study is to investigate learner perceptions of the ease of asking and answering questions in the television classroom, and how these perceptions are affected by the location of the individual sending the message, the location of the individual receiving the message, and the type of message being sent. Learners from the remote site locations rated the television classroom as significantly easier than the traditional classroom for asking and answering questions. Learners from the on-site studio classroom did not rate the two as significantly different. The learner location (studio or remote) or type of communication (ask or answer) did not have a significant effect on learner perceptions of the ease of communication with the instructor. Asking or answering questions at the same site was perceived to be significantly easier than at different sites, suggesting the importance of the other learner in learner-learner interaction. Learners perceived sending answers to be easier than asking questions when communicating with learners at a different site; however, they found asking questions to be easier than answering them when communicating with learners at the same site. Two figures illustrate results. (Contains 17 references.) (MAS)

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Title:

Sharing Across Disciplines -- Interaction Strategies in Distance Education
Part I: Asking and Answering Questions

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Past research has found that student satisfaction and perceived learning are affected by the availability of interaction. When students had the opportunity to comment on lectures, satisfaction and perceived learning were greater (Hackman & Walker, 1990). When students interacted regularly with the instructor and other students, they reported increased motivation and higher quality learning experience (Garrison, 1990). Fulford and Zhang (1993) found that students' perceptions of high levels of classroom interaction corresponded to higher levels of satisfaction.

Interactive forms of distance education such as audio tele-conferencing and television classrooms try to approximate the traditional face-to-face classroom. These systems of instructional delivery depend on communication technology to allow interaction (Garrison, 1990). Garrison contends the quality of distance education programs depends on the technological capability of the system to provide frequent and regular interaction. Even though learning outcomes are comparable, distance education programs may be inferior to the traditional classroom setting when interaction is inhibited.

Kozma (1991) argues that a learner uses the medium of instruction as well as the content to create knowledge and the capabilities of the medium influence the learner's information processing. This means different media with different attributes and capabilities can produce different learning. The medium being considered in this study is the two-way interactive television form of instructional delivery. Kozma (1991) suggested the learning process is sensitive to external environmental characteristics such as the availability and structure of information.

Hackman and Walker (1990) suggest even though learning outcomes are the same, there are some fundamental differences between the two forms of instructional delivery. Some of these differences are overt and may relate to limitations of interaction. In the television course with two-way interactive video, students at the remote sites and in the studio must use microphones to communicate with the instructor or with students at other sites. Students must also speak to the camera in order to approximate eye contact and must see themselves on the television screen when speaking. Ritchie (1993) pointed out that the television does not show the instructor at all times and all of the students are not shown at all times. In the traditional class, students always see the instructor, and the instructor always sees the students. Under the television conditions important non-verbal communication such as body language can be limited or totally missing (Fulford & Zhang, 1993; Ritchie, 1993). Some students report uneasiness in front of the camera, disliking the microphones, and high anxiety while on television (Nahl, 1993). These barriers may create additional mental effort and possibly make interactive television harder rather than easier.

The unique features of the interactive television classroom are components of the communication process. If students perceive these components as barriers to communication, interaction may be affected. Fulford & Zhang (1993) found that student perceptions of overall classroom interaction was a critical predictor of satisfaction. Notably, they found that students' perceptions of personal interaction level were not significantly related to actual interaction time (Zhang & Fulford, 1994). Hackman and Walker (1990) found students' perceptions of learning and satisfaction can be maximized by manipulating design features. These studies imply student perceptions can strongly affect interaction and satisfaction. Salomon's model of mental effort may be more relevant to student perceptions of interaction rather than achievement in interactive television.

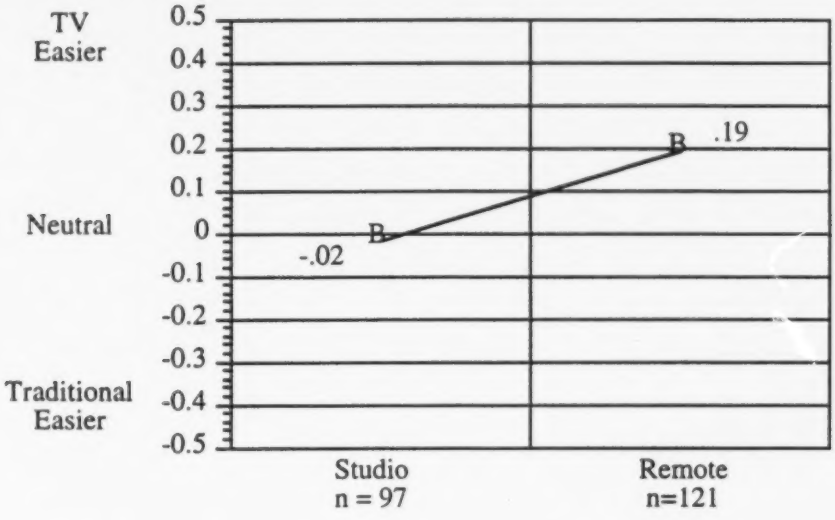
Moore (1989) describes three types of interaction: learner-instructor, learner-learner, and learner-content. This study will focus on the first two types: learner-instructor and learner-learner. Because of the unique situation of the television classroom, both interaction types can be divided into interaction at the same site and interaction between different sites. In the traditional classroom, all the students are in the same room with the instructor, but in the television system only the studio site students are in the same room as the instructor.

Instead of looking at overall levels of interaction, this study focuses on specific behaviors: asking questions and answering questions. These behaviors can be seen as important starting points or integral components of interactive dialogue. If students perceive barriers to asking and answering questions, interaction may be seriously curtailed.

The purpose of this study is to investigate learner perceptions of the ease of asking and answering questions in the TV classroom and, how these perceptions are affected by the location of the individual sending the message, the location of the individual receiving the message, and the type of message being sent.

As shown in Figure 1, a mean = 0 would indicate that the perceived ease of sending messages was the same for the traditional and the TV methods of instruction. A positive mean would indicate sending messages in the TV class was perceived to be easier, and a negative mean would indicate the traditional class was perceived as easier for sending messages. Learners from the remote site locations rated the TV classroom as significantly easier for asking and answering questions than the traditional setting. Although significant, the effect size was relatively low, Cohen's d = .29. Learners from the studio class did not rate the two as significantly different.

Figure 1. TV vs. Traditional in a Single Sample T-Test.



For the studio group, the most obvious differences between the TV and the traditional settings is the presence of the technical equipment in the TV class. This equipment does not seem to make the TV class different in terms of the perceived ease of sending messages. For the remote group, the differences include the technology and the absence of the instructor. Perhaps not having the instructor in the same room creates a less intimidating situation where the learner feels it easier to send messages. This may be particularly true with the population unique to Hawaii that is composed of many cultures, predominantly Asian. With a small effect size and an atypical population, caution should be observed when extrapolating these results. Further research is needed to confirm these results with other cultural groups.

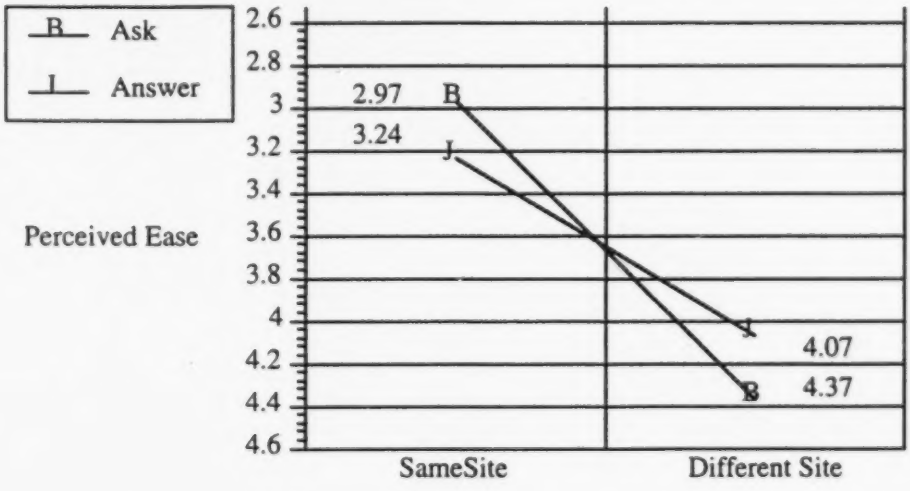
When interacting with the instructor, does the learner's origination site (studio or remote) affect the perceived ease of asking and answering questions? (RQ2) A 2x2 ANOVA with repeated measures on the independent variable message type was conducted. The independent variable message type had two levels: ask and answer. The independent variable sender location had two levels: studio and remote. (See Figure 2.) The learner location (studio or remote) or type of communication (ask or answer) did not have a significant effect on learner perceptions of the ease of communication with the instructor. These results indicate being physically separated from the instructor does not affect how easy learners feel it is send questions and answers. Perhaps the instructors in these courses have been able to successfully use strategies that facilitate learner-instructor interaction

The main effect of message was not significant. Overall learners perceived no difference between the ease of asking and answering questions. However, the main effect of destination was significant ($df = 1$, $F = 136.94$, $p<.01$). Learners perceived it to be significantly easier to ask or answer questions at the same site rather than at the a different site. These results suggest the importance of the physical presence of the other learner in learner-learner interaction. Learners have limited contact with other students at different sites. Different site students are not viewed on the screen very often, and usually the whole class will be shown from a distance rather than close-ups of each individual. Interaction with other learners at the same site can be informal and does not require the use of technology. In order to interact with a learner at a different site, the microphones, TV's, and cameras must be used.

The interaction effect, destination by message type, was significant ($df = 1$, $F = 25.55$, $p<.05$). (See Figure 3 and 4.) Learners perceive sending answers to be easier than asking questions when communicating with learners at a different site; however, they found asking questions to be easier than answering questions when communicating with learners at the same site. When communicating in the TV classroom, directing a question to a learner at a different site is perceived as harder than responding to a question posed by a learner at a different site. Perhaps answering is easier because a response has been prompted, while asking a question requires initiating a communication behavior with a physically and possibly psychologically distant individual. If learner to learner interaction is more informal and occurring while the instructor is lecturing, then answering a question from a learner at the same site may mean missing transient information. The learner asking the question is willing to miss information, the individual being asked may not want to divert attention away from the instructor.

The interaction effects of location by message and destination and location were not significant. Learners at both studio and remote sites perceive asking and answering questions with the same relative ease. Also, as would be expected, learners at both studio and remote sites perceive it easier to ask or answer questions within the same site rather than a different site. The three-way interaction effect destination by message type by learner location was not significant. The pattern of the destination by the message type interaction is the same for both the studio and remote sites. This is shown graphically by comparing of Figure 3 and Figure 4.

Figure 3. Learners at the Remote Site with Same Site and Different Site Learners using a 3-Way ANOVA with repeated measures on Message and Destination.



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